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Amendment and/or Response
Reply to Final Office action of 2 July 2008

Amendments to the Claims:

A listing of the entire set of pending claims (including amendments to the claims, if any) is submitted herewith per 37 CFR 1.121. This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A method for processing an image containing at least a portion of a head of a human in a video phone system, comprising:

estimating an orientation of said head in said image using a pattern recognition technique, said pattern recognition technique comprises a classification technique;

keeping said image unmodified, without further processing, if the orientation of said head is estimated to be frontal, otherwise

computing a three dimensional model of a face surface of said human using a computer vision technique based on the result of the classification technique; and

adjusting an orientation of said three dimensional face surface model to provide a frontal view.

2. (Original) The method of claim 1, wherein said computing step further comprises the step of using a symmetric face assumption to obtain a complete three dimensional face surface model for a profile view.

3. (Original) The method of claim 1, wherein said computing step further comprises the step of employing a structure from motion technique to obtain said three dimensional face surface model.

4. (Cancelled)

5. (Original) The method of claim 1, wherein said computing step generates a morphable three dimensional model.

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6. (Original) The method of claim 1, further comprising the step of mapping said three dimensional face surface model having an adjusted orientation to a two dimensional space.

7. (Original) The method of claim 1, further comprising the step of transmitting said adjusted image to a remote user.

8. (Original) The method of claim 1, further comprising the step of presenting said adjusted image to a local user.

9. (Currently amended) An image processor for use in a video phone system, comprising:

a memory for storing an image containing at least a portion of a head of a human; and

a head pose corrector that

(i) estimates an orientation of said head in said image using a pattern recognition technique, said pattern recognition technique comprises a classification technique;

(ii) keeps said image unmodified, without further processing, if the orientation of said head is estimated to be frontal; otherwise the head pose corrector

(iii) computes a three dimensional model of a face surface of said human using a computer vision technique based on the result of the classification technique; and

(iv) adjusts an orientation of said three dimensional face surface model to provide a frontal view.

10. (Original) The image processor of claim 9, wherein said head pose corrector is further configured to use a symmetric face assumption to obtain a complete three dimensional face surface model for a profile view.

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11. (Original) The image processor of claim 9, wherein said head pose corrector is further configured to employ a structure from motion technique to obtain said three dimensional face surface model.

12. (Cancelled)

13. (Original) The image processor of claim 9, wherein said three dimensional face surface model is a morphable three dimensional model.

14. (Original) The image processor of claim 9, wherein said head pose corrector is further configured to map said three dimensional face surface model having an adjusted orientation to a two dimensional modified image.

15. (Original) The image processor of claim 14, wherein said two dimensional modified image is transmitted to a remote user.

16. (Original) The image processor of claim 14, wherein said two dimensional modified image is presented to a local user.

17. (Currently amended) A video phone system, comprising:

    a memory for storing an image containing at least a portion of a head of a human; and

a head pose corrector that

    (i) estimates an orientation of said head in said image using a pattern recognition technique, said pattern recognition technique comprises a classification technique;

    (ii) keeps said image unmodified, without further processing, if the orientation of said head is estimated to be frontal; otherwise the head pose corrector

    (iii) computes a three dimensional model of a face surface of said human using a computer vision technique based on the result of the classification technique; and

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(iv) adjusts an orientation of said three dimensional face surface model to provide a frontal view.

18. (Original) The video phone system of claim 17, wherein said head pose corrector is further configured to use a symmetric face assumption to obtain a complete three dimensional face surface model for a profile view.

19. (Original) The video phone system of claim 17, wherein said head pose corrector is further configured to employ a structure from motion technique to obtain said three dimensional face surface model.

20. (Cancelled)

21. (Original) The video phone system of claim 17, wherein said head pose corrector is further configured to map said three dimensional face surface model having an adjusted orientation to a two dimensional modified image.

22. (Original) The video phone system of claim 21, wherein said two dimensional modified image is transmitted to a remote user.

23. (Original) The video phone system of claim 21, wherein said two dimensional modified image is presented to a local user.